

REMARKS/ARGUMENTS

Favorable reconsideration of this application in light of the following discussions is respectfully requested.

Claims 1-22 are presently pending in this application.

In the outstanding Office Action, Claims 1-22 were rejected under 35 U.S.C. § 103(a) as being unpatentable over JP 2001-334114 (hereinafter “JP ‘114”) in view of Ichikawa et al. (U.S. Patent 7,056,568).

Briefly recapitulating, Claim 1 is directed to a honeycomb structural body and recites “at least one pillar-shaped porous ceramic member comprising a silicon-ceramic composite material, the silicon-ceramic composite material comprising a silicon constituent and a ceramic constituent, the at least one pillar-shaped porous ceramic member having a plurality of through-holes extending in a longitudinal direction of the at least one pillar-shaped porous ceramic member and a plurality of partitions separating the through-holes, wherein the through-holes are plugged such that an opening area at one end face of the at least one pillar-shaped porous ceramic member is different from an opening area at the other end face of the at least one pillar-shaped porous ceramic member.”

The Office Action maintains that the subject matters recited in Claims 1 and 3 are unpatentable over JP ‘114 (“Motoshige”) and Ichikawa et al. because “[i]t would have been obvious to ... combine the honeycomb structure of Motoshige with the honeycomb structure utilizing silicon-silicon carbide composite material of Ichikawa to make a honeycomb structure with enhanced heat resistance and thermal conductivity.” The Office Action also states that “[w]hile it may not specifically be taught in Ichikawa to choose silicon-silicon carbide over regular silicon carbide, this comparison is not necessary to show that silicon-

silicon carbide is known in the art of materials that are particularly suitable for uses in honeycomb structures.”

Ichikawa et al. simply states that “from the standpoints of thermal conductivity and heat resistance, silicon carbide or a silicon-silicon carbide composite material is particularly suitable,”¹ suggesting that among them, both silicon carbide and a silicon-silicon carbide composite material are equally acceptable for their invention from the thermal conductivity and heat resistance standpoints. Applicants respectfully direct the Examiner to Table 1 in Applicants’ specification and wish to point out that the filters using a silicon-silicon carbide composite are significantly superior to the filters made of only silicon carbide in “Thermal shock” as well as “Catching limit,” and “Accumulated amount ratio of ash” (the separation of ash off the structures).² More specifically, Table 1 shows the comparison between Example 1.4 and Comparative Example 1.1 (Figure 13) and the comparison between Example 1.5 and Comparative Example 1.2 (Figure 14). In the comparison Example 1.4 and Comparative Example 1.1, Example 1.4 exhibits the improvements in thermal shock (from 35°C to 40°C), catching limit and accumulated amount ratio of ash (from 0.8 to 0.7), and similarly in the comparison between Example 1.5 and Comparative Example 1.2, Example 1.5 exhibits the improvements in thermal shock (from 40°C to 45°C), catching limit and accumulated amount ratio of ash (from 0.8 to 0.6). Also, it is believed that nowhere in JP ‘114 and Ichikawa et al. teaches or suggests that the use of a silicon-silicon carbide composite material can advantageously alter the catching limit and accumulated amount ratio of ash. Therefore, it is respectfully submitted that the structures utilizing “the silicon-ceramic composite material comprising a silicon constituent and a ceramic constituent” as recited in Claim 1 have significant advantages as well as results not expected from the teachings of Ichikawa et al.

¹ Ichikawa et al., column 8, lines 4-6.

² See Specification, page 51, Table 1, and Figures 13 and 14..

over the structures made of silicon carbide material. As such, Applicants respectfully request withdrawal of the outstanding obviousness rejection based on JP '114 and Ichikawa et al.

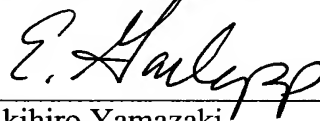
Likewise, Claim 3 recites “at least one pillar-shaped porous ceramic member comprising a silicon-ceramic composite material, the silicon-ceramic composite material comprising a silicon constituent and a ceramic constituent, the at least one pillar-shaped porous ceramic member having a plurality of through-holes extending in a longitudinal direction of the at least one pillar-shaped porous ceramic member and a plurality of partitions separating the through holes, wherein the plurality of through-holes includes a group of large volume through-holes plugged so as to make relatively large a sum of opening areas at one end face perpendicular to the longitudinal direction, and a group of small volume through-holes plugged so as to make relatively small a sum of opening areas at the other end face,” and is believed to be distinguishable from both JP '114 and Ichikawa et al.

For the foregoing reasons, Claims 1 and 3 are believed to be allowable. Furthermore, since Claims 2 and 4-22 depend directly or indirectly from either Claim 1 or 3, these dependent claims are also believed to be allowable for substantially the same reasons set forth above.

In view of the discussions presented above, Applicants respectfully submit that the present application is in condition for allowance, and an early action favorable to that effect is earnestly solicited.

Respectfully submitted,

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